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Serial No. 10/567,369  
Docket No. PKHF-04053US  
HHR.201

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DEC 21 2010

## REMARKS

Entry of this Amendment is proper because it narrows the issues on appeal and does not require further search and/or consideration by the Examiner.

Claims 1, 4, 6, 9-13, 15, and 21 are pending in this Application. Applicants have amended various claims. No new matter is added.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicants specifically state that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 1, 4, 6, 9, 10, 15, and 21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Yang et al. (Preparation and structural properties for GaN films grown on Si (111) by annealing," hereinafter "Yang") in view of Park et al. ("Ammonolysis of Ga<sub>2</sub>O<sub>3</sub> and its application to the sublimation source for the growth of GaN film," hereinafter "Park"). Claims 11-13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Yang in view of Park, and further in view of Kryliouk (US Patent 6,350,666).

Applicants respectfully traverse this rejection in the following discussion.

### I. THE CLAIMED INVENTION

The claimed invention (e.g., as defined by exemplary claim 1) is directed to a semiconductor layer.

The semiconductor layer includes a Ga<sub>2</sub>O<sub>3</sub> system single crystal substrate, and a layer including a nitride surface of the substrate containing oxygen and nitrogen.

With this structure, a layer having a GaN system compound semiconductor with high crystalline could be obtained without interposing a buffer layer. Further a GaN system epitaxial layer having a high crystal quality could be obtained (e.g., see Application at page 12, lines 1-13).

### II. THE PRIOR ART REJECTION

In rejecting claims 1, 4, 6, 9, 10, 15, and 21, the Examiner alleges that one of ordinary

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skill in the art would have combined Yang with Park to render obvious the claimed invention.

Applicants respectfully submit that the references would not have been combined as alleged by the Examiner and that, even if combined, the alleged combination of references would not teach or suggest each and every feature of the claimed invention.

As an initial matter, however, Applicants submit that Park is not qualified as prior art against the claimed invention.

That is, Park was published in 2004. However, based on the Verified English Translation of the Priority Document that we filed on September 30, 2010, the priority date of the present Application has been perfected back to August 8, 2003. Thus, the Examiner's rejection of claims 1, 4, 6, 9, 10, 15, and 21 based on Park is improper, since Park is not a qualified prior art reference.

Furthermore, Applicants submit that Yang and Park, either alone or in combination (arguendo) fail to teach or suggest, "*a Ga<sub>2</sub>O<sub>3</sub> system single crystal substrate; and a layer comprising a nitride surface of said substrate containing oxygen and nitrogen,*" (emphasis added by Applicants) as recited in claim 1, and similarly recited in claims 6 and 21.

Indeed, The Examiner does not even allege that Yang or Park teaches or suggests this feature of the claimed invention.

Moreover, Applicants submit that in the claimed invention the substrate includes a Ga<sub>2</sub>O<sub>3</sub> system single crystal, and a layer including a nitride surface of the substrate containing oxygen and nitrogen.

With the claimed structure, the GaN growth layer has superior crystalline quality because it is grown on the surface of the substrate which is the GaN layer.

Yang and Park do not even recognize this problem, let alone teach or suggest (and thus provides a much different structure than) a solution similar to that of the present invention. Therefore, the alleged combination of the references fails to teach or suggest this feature of the claimed invention.

Moreover, Applicants respectfully submit that these references are unrelated and would not have been combined as alleged by the Examiner. Thus, a person of ordinary skill in the art would not have considered combining these disparate references, absent impermissible hindsight.

Further, Applicants submit that there is no motivation or suggestion in the references

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or elsewhere (and thus no predictability for one of ordinary skill in the art) to urge the combination as alleged by the Examiner. Indeed, these references clearly do not teach or suggest their combination. Therefore, Applicants respectfully submit that one of ordinary skill in the art would not have combined the references as alleged by the Examiner.

Therefore, Applicants respectfully submit that one with ordinary skill in the art would not have combined Yang with Park, and even if combined, the alleged combination does not teach or suggest (or render obvious) each and every feature of the claimed invention. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw this rejection.

Furthermore, in rejecting claims 11-13, the Examiner alleges that one of ordinary skill in the art would have combined Yank and Park with Kryliouk to render obvious the claimed invention.

Applicants respectfully submit, however, that the references would not have been combined as alleged by the Examiner and that, even if combined, the alleged combination of references would not teach or suggest each and every feature of the claimed invention.

Applicants respectfully traverse this rejection, at least because Kryliouk is not cited as remedying the aforementioned deficiencies of Yank and Park.

Indeed, Kryliouk is merely cited for allegedly disclosing the composition of the first layer. Thus, claims 11-13 are allowable for at least the same reasons that the underlying base claim is allowable.

### III. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicants submit that claims 1, 4, 6, 9-13, 15, and 21, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

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The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: 12/21/10

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#### FACSIMILE TRANSMISSION

I hereby certify that I am filing this paper via facsimile, to Group Art Unit 2814, at (571) 273-8300, on December 21, 2010.

Respectfully Submitted,

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